

REMARKS

Applicant affirms the election to prosecute claims 35-44, without traverse.

Claims 1-34 and 45 have been canceled without prejudice. Claim 35 has been amended to affirmatively recite the curable formulation contains acrylic monomer, acrylic oligomer, and a photoinitiator. New claims 46-55 have been added, which find support in claims 35-44 and pages 7 and 9 of the specification. No new matter is added. Because claims 1-34 and 45 have been canceled, no fee is believed to be due in connection with adding the new claims. Upon entry of the amendment, the pending claims shall constitute claims 35-44 and 46-55.

Claims 35-44 were rejected as unpatentable over Smith et al. (US 5,166,007) in view of Ellrich et al. (4,737,593). The examiner stated that Smith et al. taught repair compositions for vehicles using a UV-light curable composition comprising one or more ethylenically unsaturated copolymerizable polyester, vinyl or acrylic esters, ethylenically unsaturated copolymerizable monomeric compounds, an inhibitor, and a UV sensitizer. The examiner asserted that while Smith et al. does not expressly teach using acylphosphine oxide with hydroxyl ketone photoinitiator, it is well-known to combine such types of photoinitiators for a thorough cure, pointing to Ellrich et al. at col. 4, lines 45-50. The examiner asserted that it would have been obvious to combine the acylphosphine oxide with a hydroxyl ketone based on Ellrich et al. The examiner further alleged that Smith et al. showed use of the formulations including a prepeg fabric, a UV transparent release film, and a UV blocking film. The examiner alleged that the method can include a layer of photocurable molding applied to an area for repair. The examiner stated that while the examiner was aware that Smith et al. did not teach creating a vacuum across at least one side of the formulation, this procedure would have been obvious based on the rationale that "a reasonable expectation of curing in an oxygen free environment since it is well known that oxygen inhibits free radicals created by the exposure of radiation in a UV curable system in the absence of evidence to the contrary and/or unexpected results."

Applicants disagree.

First, claim 35 affirmatively recites creating a vacuum across at least one side of the ultraviolet light curable composition. Smith et al. and Ellrich et al. are both silent as to this issue. Silence in a reference is hardly a proper substitute for an adequate disclosure of facts from which a conclusion of obviousness may justifiably follow. In re Burt et al., 148 USPQ 548, 553 (CCPA 1966). Nonetheless, the examiner asserts it would be obvious to create such a vacuum. This assertion lacks foundation – the cited art does not teach or suggest this allegation. The examiner supplies neither a reference supporting this allegation nor an examiner's affidavit to support this proposition. What is more, the use of a vacuum by applicants is to facilitate the final product to have sufficient strength and to reduce the amount of voids, regardless of oxygen inhibition. The examiner, consequently, has not made out a prima facie case of obviousness. As such, the rejection is in error and should be withdrawn.

Furthermore, Smith et al. vaguely states that the prepeg described therein can be used to repair “vehicles, installations, parts, and the like.” (Col. 2, lines 8-13.) “Installation” is defined as relating to “machinery, building structures, tanks, and the like which are metallic or plastic.” (Col. 1, lines 66-68.) The only specific items described are “tanks and similar containers which hold liquids and/or low pressure casts.” (Col. 2, lines 27-30.) Smith et al. is silent as to repair of airplanes. Smith et al. does not teach or suggest or motivate a skilled artisan to repair an airplane, as claimed. For this reason, the examiner has not made out a prima facie case of obviousness. Accordingly, the rejection is in error and should be withdrawn.

Moreover, Smith et al. teaches a “patch” that is used to repair vehicles, installations, and parts. In the case of a hole in such a vehicle, installation, or part, FIG. 3 shows a whole that is filled with material other than the patch, with the patch 19 then being applied over the hole. This is described at col. 4, lines 9-16. Indeed, Smith et al. expressly states that if a damaged area contains a hole, a different photocurable resin is first used to fill the whole, and then the patch is applied. (Col. 8, lines 41-46.) Smith et al. does not teach or suggest use of the patch to fill a hole, as called for in claim 35. Consequently, the examiner has not made out a prima facie case of obviousness. Accordingly, the rejection is in error and should be withdrawn.

Turning to the dependent claims, claims 36-38 and 41 recite an acrylate oligomer. By contrast, Smith et al. discloses polyester resins (column 6, lines 51-59) and ethylenically unsaturated copolymerizable monomers (column 4, lines 22-23 and A resin is a high polymer, not an oligomer. (See the attached pages from Hawley's Condensed Chemical Dictionary.) Likewise, a monomer is not an oligomer. Smith et al. also discloses the used of novolacs having a functionality greater than 1.9. (Col. 7, line 11.) A novolac is neither an oligomer or made from an acrylate. Smith et al. does not teach or suggest use of acrylate oligomers. For this additional reason, claims 36-38 and 41 are patentable over Smith et al. in view of Ellrich et al.

With respect to the issue of combining an accelerator with Smith et al.'s acylphosphine oxides, it should be noted Smith et al. states that "Such UV sensitizers, especially the particularly preferred 2,4,6-trimethylbenzoyldiphenylphosphine oxide, surpass in their reactivity all conventional photoinitiators for unsaturated polyester resins. This high reactivity results in a high exothermicity on curing laminates." Not only does this passage not teach or suggest using the acylphosphine oxides with other accelerators, but leads a skilled artisan to avoid additional UV sensitizers because high exothermicity is already obtained. For this reason, the combination of Smith et al. with Ellrich et al. is improper. The rejection based on this ground of rejection, particularly for dependent claims 36 and 41-43, should be withdrawn.

What is more, assuming arguendo that the combination is proper, Ellrich et al. teach acylphosphines combined with other photoinitiators. Specifically, in the passage cited by the examiner, Ellrich et al. discloses "aromatic ketones such as benzyl ketals, benzoine ethers, benzoine esters, thioxanthenes and 1,2-diketones, e.g. camphor quinone." Col. 4, lines 47-50. Ellrich et al. does not teach or suggest either bis-acylphosphines or alpha hydroxy ketones, as called for in dependent claims 36, 42, and 43. Accordingly, the rejection based on this ground of rejection should be withdrawn.

In addition, new independent claim 46 has been added, which specifies that the amount of acrylic monomer in the curable formulation is at least about 30% and the amount of acrylic oligomer is at least about 20%. Claim 46 and its dependent claims further distinguish because Smith is limited to use of polyesters or novolacs as its major component. See col. 4 and col. 6.

In view of the foregoing, the rejection based on Smith et al. in view of Ellrich et al. should be withdrawn.

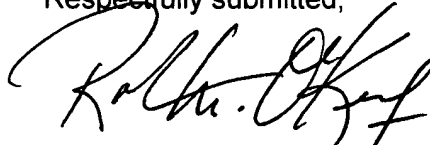
CONCLUSION

In view of the foregoing, it is submitted that the claims are in condition for allowance. Accordingly, favorable reconsideration and Notice of Allowance are courteously solicited.

An extension of time is submitted herewith. If the request for such extension is missing, please consider this paper to be a request for such extension and deduct any required fee from deposit account 10-1205.

Should any fees under 37 CFR 1.16-1.21 be required for any reason relating to the enclosed materials, the Commissioner is authorized to deduct such fees from Deposit Account No. 10-1205. The examiner is invited to contact the undersigned at the phone number indicated below with any questions or comments, or to otherwise facilitate expeditious and compact prosecution of the application.

Respectfully submitted,



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